



E-611

Description

The E-611 is a flexible 32-bit digital governing system that can be used in many new applications or as a drop in replacement for our older controllers. This controller can govern more accurately and has a multitude of reconfigurable options. The E-611 can be calibrated using up to seven on board potentiometers to configure settings such as gain, integral, derivative and speeds. This controller may also be calibrated and monitored using a RS-232 cable and our custom user interface to access all the available options this controller has to offer. The E-611 has four discrete inputs and outputs as well as two analog inputs for monitoring or controlling any needed peripherals. There is also an option available that incorporates up to two CAN bus interfaces using the J-1939 standard protocol for networking your controller to any other compatible devices. If for any reason a software update is needed, you will be able to re-flash this controller using our custom software and an update that PG provides for your application.

The following contains all the features and data that are available in this package. PG will customize this controller and its software to fit the needs of your application.

Features

- High impact plastic case
- 12/24 volt DC power
- Configurable PID actuator control loop
- RS-232 serial interface
- Speed input (mag pickup, ignition, transformer)
- Overspeed and underspeed control
- Auto-Start capability
- Starter lockout capabilities
- Warm up speed and time
- Up to 7 reconfigurable pots for adjustments
- 8 DIP switches for optional settings
- 4 discrete inputs
- 4 discrete outputs
- 2 analog inputs
- Multiple frequency inputs for speed monitoring
- Over current and short circuit protected
- 5 volt and ground rails for analog power (2x)
- LED fault/status indicator
- Optional EMI protection
- 2 Optional CAN interfaces
- Customizable J-1939 protocol for CAN interface

Specifications

Mechanical

Operating Temp	-30 to 85° C -22 to 185° F
Mounting attitude	Any (Vertical preferred)

Inputs

Power Supply	8-30 VDC
Speed Sensor	+/-100 V AC/DC 15 kHz max
Analog	0-20V
Discrete	0-30V pull-up 3V threshold

Outputs

Governor	6A continuous Short circuit protected
Discrete	1A open drain
Analog Reference	+5V

Communication

RS-232	57.6K baud 8 data bits No parity 1 stop bit No flow control J-1939 protocol Up to 1M baud Custom commands
CAN (2x)	

Data

Pin Outs

Pin	Name	Description
	PWR	+12/24V power
	GDIN	Ground
	MAG1	Magnetic pickup +
	MAG2	Magnetic pickup -
	ACTP	Governor (polarity insensitive)
	ACTN	Governor (polarity insensitive)
	IN1	Discrete input 1
	IN2	Discrete input 2
	IN3	Discrete input 3
	IN4	Discrete input 4
	OUT1	Discrete output 1
	OUT2	Discrete output 2
	OUT3	Discrete output 3
	OUT4	Discrete output 4
	+5V1	+5 Volt rail 1
	+5V2	+5 Volt rail 2
	GD01	Ground rail 1
	GD02	Ground rail 2
	C0G	CAN bus 0 ground
	C0HI	CAN bus 0 high
	C0LO	CAN bus 0 low
	C1G	CAN bus 1 ground

	C1HI	CAN bus 1 high
	C1LO	CAN bus 1 low
	DIS1/M1A	Universal frequency input 1 / DIS input 1
	DIS2	DIS input 2
	A1	Analog input 1
	A2	Analog input 2
	H2-2	RS-232 serial receive
	H2-3	RS-232 serial transmit
	H2-5	RS-232 serial ground

NOTE: Pin outs will vary depending on application, features selected, and connector type desired

Calibrations

Parameter	Description
Proportional	Response time
Integral	Steady state error
Derivative	Stability adjustment
Gain	Master gain response
Ramp-up	Engine speed rate of change up
Ramp-down	Engine speed rate of change down
Set Speed Max	Max settable speed via pot
Set Speed Min	Min settable speed via pot
Warm-up %	Percent of set speed for engine warm-up
Warm-up Time	Warm up time
Pulses per Rev	Pulse per engine revolution
Min Pulses per Update	Pulses till next speed calculation
Overspeed %	Shutdown max speed
Overspeed Time	Time till overspeed trips
Underspeed %	Shutdown min speed
Underspeed Time	Time till underspeed trips
Underspeed Run Time	Seconds after start when under speed checked

NOTE: 2 separate calibrations can be saved and loaded

Pot Configurations Available

Index	Setting	Description
1	Speed 1	Speed when discrete inputs are all off
2	Speed 2	Speed when discrete input 1 is on
3	Speed 3	Speed when discrete input 2 is on
4	Speed 4	Speed when inputs 1 and 2 are both on
5	DBW MIN	Speed to run at the lowest input voltage
6	DBW MAX	Speed to run at this highest input voltage
7	DBW V at Min	Low voltage for comparison
8	DBW V at Max	High voltage for comparison

9	kp	Proportional gain
10	kd	Derivative gain
11	ki	Integral gain
12	Gain	Master gain
13	Kp St 2	Stage 2 proportional. RAW speed based
14	Kp	Current feedback proportional gain

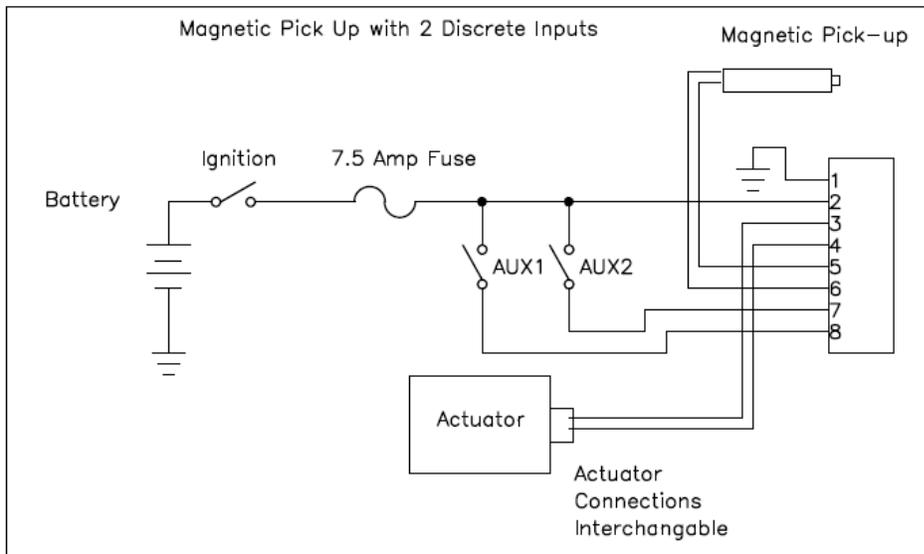
NOTE: Pots can be configured for a user specified range and are adjustable linearly or logarithmically. Customers can specify the number of Pots and their function, or configure them via the RS-232 interface

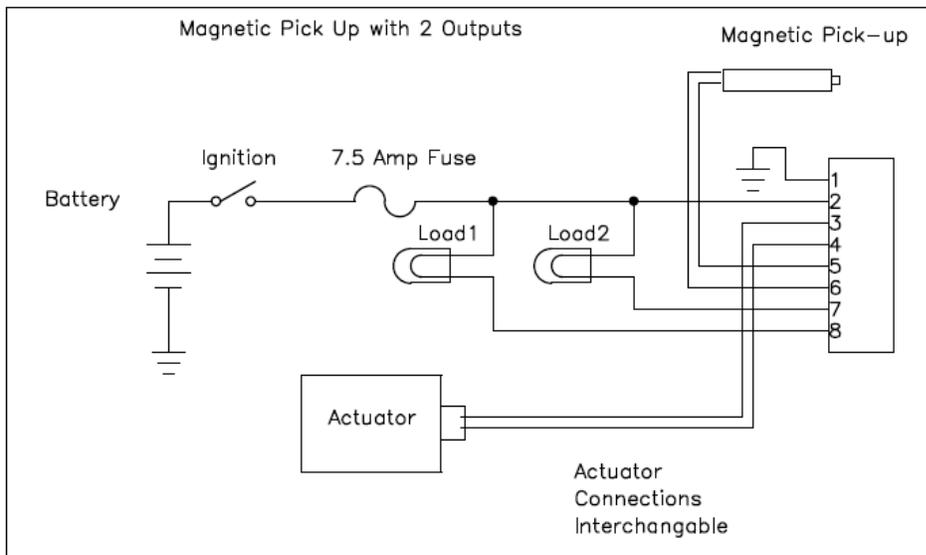
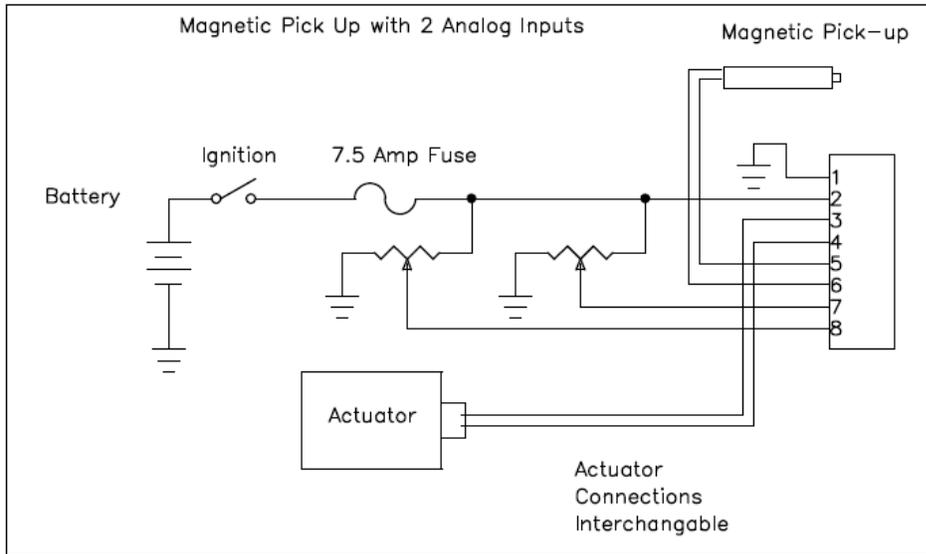
Drawings

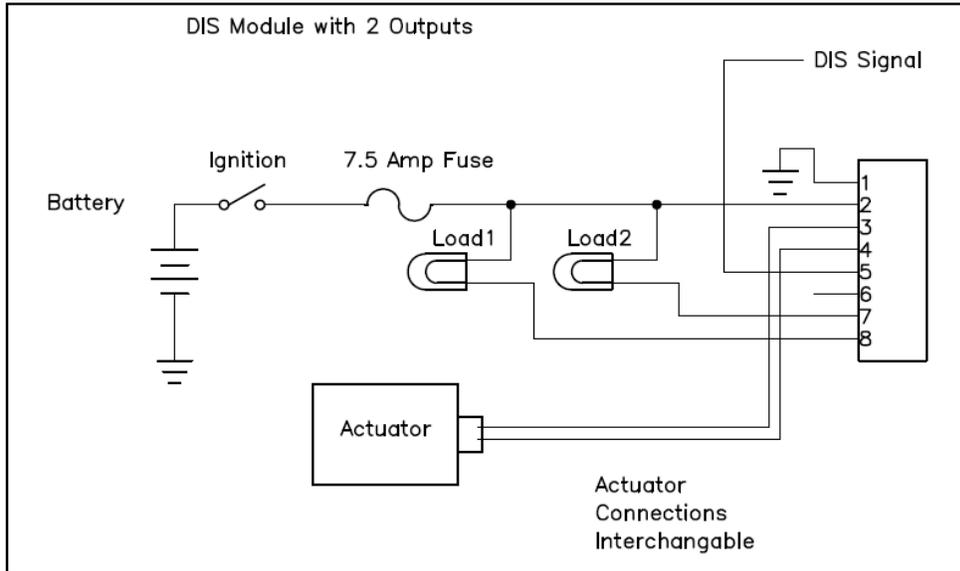
Schematics

The following are a few simple examples and assume this pin configuration

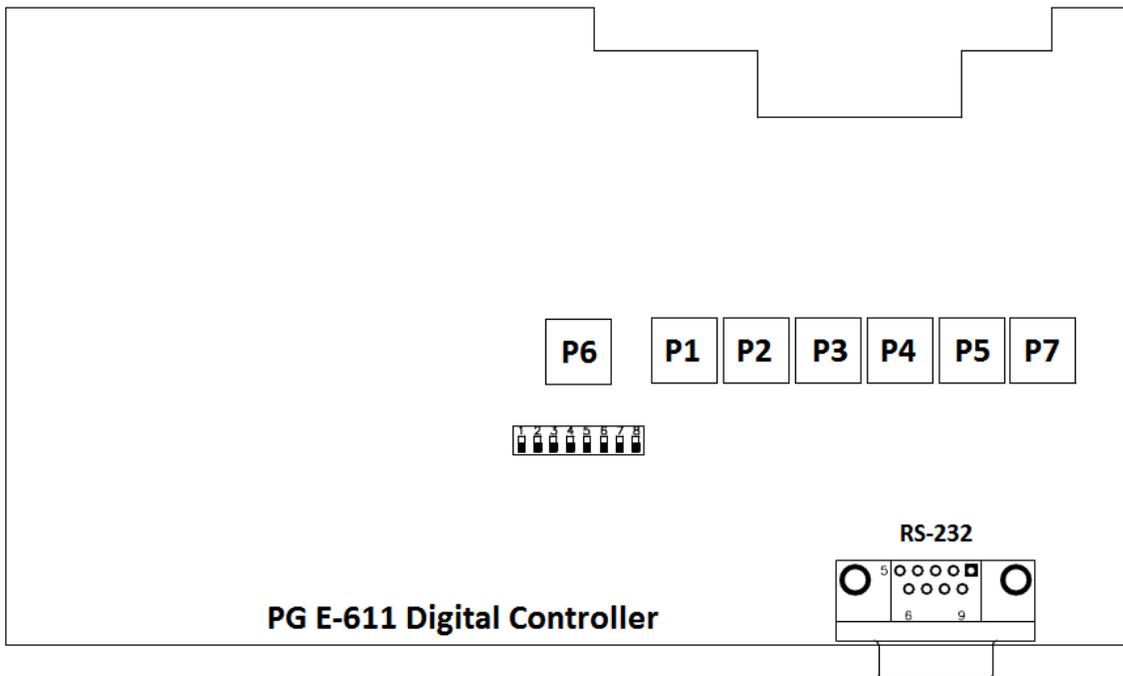
Pin	Function	Description
#1	GDIN	Ground
#2	PWR	+12/24V power
#3	ACTP	Governor (polarity insensitive)
#4	ACTN	Governor (polarity insensitive)
#5	MAG1	Speed Sensor +
#6	MAG2	Speed Sensor -
#7	IN1/OUT1/A1	Discrete input 1, discrete output 1 or analog1
#8	IN2/OUT2/A2	Discrete input 2, discrete output 2 or analog2



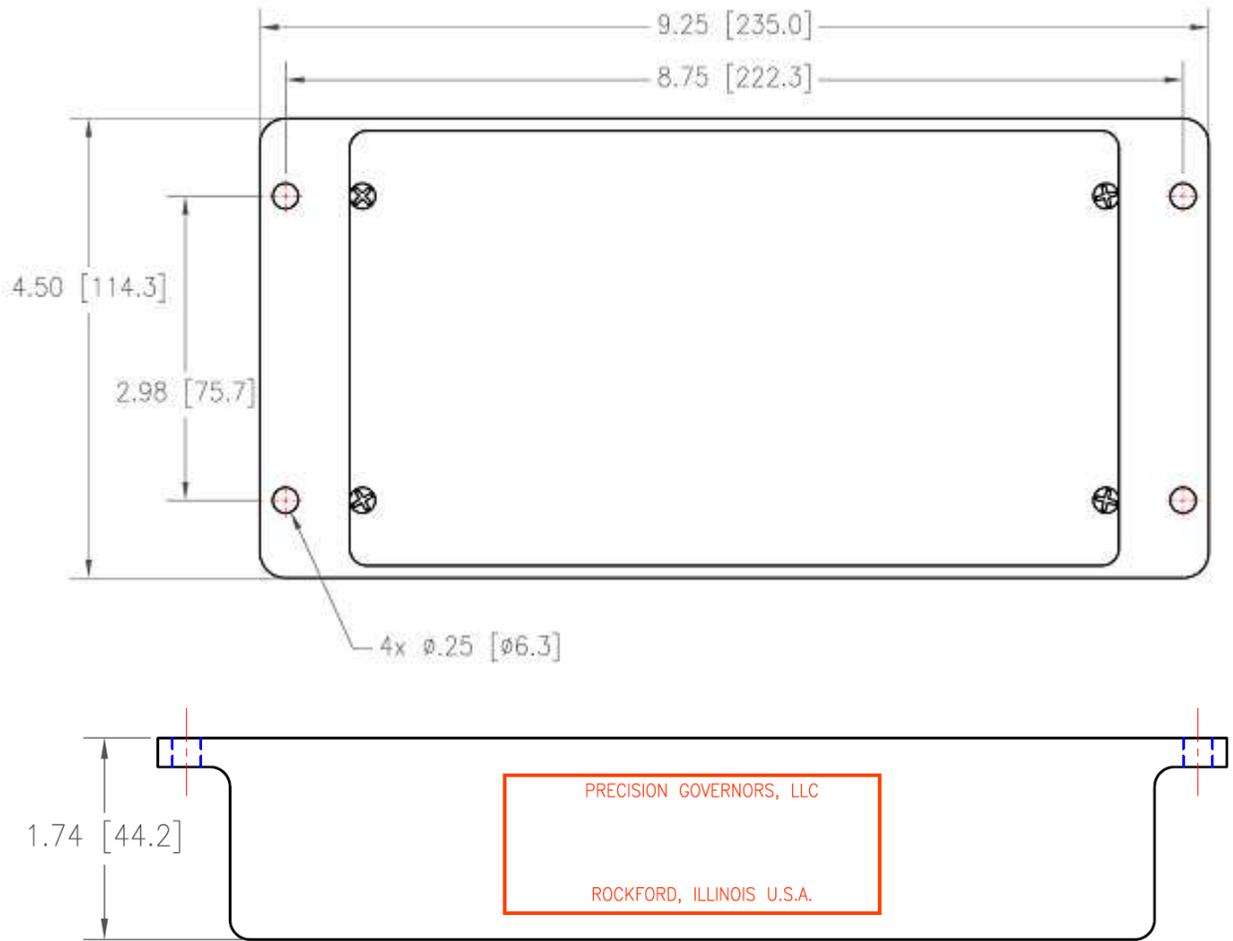




Pot and pin locations



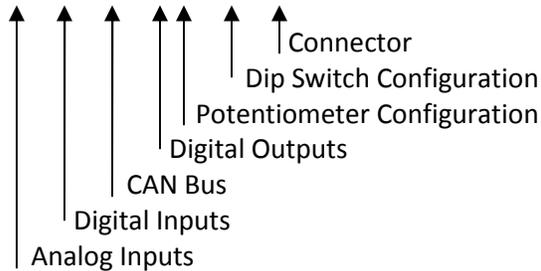
Dimensions



Reference

Part Number:

9750-B-0000-AA-3-AA-AA-A08



Analog Input Configuration

Input	A	B	C	D
A1	Off	Active	Off	Active
A2	Off	Off	Active	Active

Digital Input Configuration

Input	Not Active	Switch Active High	Frequency
IN1	0	1	2
IN2	0	1	2
IN3	0	1	2
IN4	0	1	2

CAN Bus Configuration

Channel	A	B	C
CAN 0	No	Active	Active
CAN 1	No	No	Active

Digital Output Configuration

Output	0	1	2	3
OUT1	Active	Active	Active	Active
OUT2	No	Active	Active	Active
OUT3	No	No	Active	Active
OUT4	No	No	No	Active

Potentiometer Configuration

Configuration	POT1	POT2	POT3	POT4	POT5	POT6	POT7
AA	None	None	None	None	None	None	None
AB	20 Turn	1 Turn	None	None	None	None	None
AC	20 Turn	1 Turn	1 Turn	1 Turn	None	None	None

Dip Switch Configuration

Configuration	A	B
DIP Switch	Yes	No

Connector Type

Code	Connector
A06	Terminal Strip 6 Contact
A08	Terminal Strip 8 Contact
B06	Header 6 Position
B08	Header 8 Position